International Surgery Journal
*Singh SP et al. Int Surg J. 2016 May;3(2):858-861*
http://www.ijsurgery.com
pISSN 2349-3305 | eISSN 2349-2902

DOI: http://dx.doi.org/10.18203/2349-2902.isj20160678

**Research Article**

# Incompliance in use of universal precautions as a safety measure in emergency department

**Somendra Pal Singh*, Anil Kumar, Prashant Gupta, Mohit Gupta, Praveen Singh, Swadeep Shrivastava**

Department of Surgery, UP Rural Institute of Medical Sciences and Research, Saifai, Etawah, UP, India

**Received:** 28 February 2016
**Accepted:** 03 March 2016

***Correspondence:**
Dr. Somendra Pal Singh,
E-mail: somendrachauhan@hotmail.com



## ABSTRACT

**Background:** Exposure risk of infections to blood borne pathogens while handling the patients of unknown status had been a matter of concern for medical care providers. Incompliance and lag in use of safety measures as universal precautions had been a major risk factor for contact based infections. Despite the availability of detailed guidelines, the knowledge and compliance with standard precautions vary among medical care providers and have been found to be inadequate in both developed and developing countries. The aims and objectives of the study were to observe the compliance in following the protocols and use of universal precautions by emergency medical staff (residents and nursing staff).
**Methods:** Prospective questionnaire based study conducted in emergency department of UP Rural Institute of Medical Sciences and Research, Saifai, Etawah for the duration of 6 months i.e. January 2015 to June 2015.
**Results:** In our study incompliance towards use of eye ware was maximum followed by Handwash. A total fall of 90.09% was noted in lag of use of universal precautions at the end of the study most probably due to daily reminder by questionnaire.
**Conclusions:** Risk of exposure while handling of patients in emergency is a big threat to every medical care providers and it is unfortunate that maximum of these exposures are due to their incompliant behaviour. A simple reminder towards the use of universal precautions can largely prevent exposure based infections.

**Keywords:** Universal precautions, Incompliance, Medical care providers, Eyeware, HCW

## INTRODUCTION

Medical care providers face the occupational risk of exposure to infections with blood-borne pathogens during the course of their routine work in the wards, Intensive care units, emergency/ trauma triage, and so forth. Worldwide, almost three million health care workers (HCWs) experience percutaneous exposure to blood-borne pathogens each year.[1] Despite infection control precautions and availability of hepatitis B vaccine, health care providers remain at risk of acquiring blood-borne infections.[2] Many exposures can be prevented by careful adherence to existing infection control guidelines, immunization against hepatitis B, and provision of personal protective equipment during the management of emergencies.[3-5]

Despite the availability of detailed guidelines, the knowledge and compliance with standard precautions vary among Medical care providers and have been found to be inadequate in both developed and developing countries.

Standard precautions are the minimum infection prevention practices that apply to all patient care, irrespective of suspected or confirmed infection status of the patient, in any health care setting. These practices aim to both protect medical care providers and prevent them from transmitting the infections to their patients. Standard precautions include hand hygiene, use of personal protective equipment (e.g., gloves, gowns, and masks), needle safety, and safe handling of potentially contaminated equipment or surfaces in the patient environment including respiratory hygiene (cough etiquette) and disposal of sharps, body fluids, and other clinical wastes properly.[6-8]

### *Aims & objectives*

The aim of our study was to observe the compliance in following the protocols and use of universal precautions by emergency medical staff i.e. residents, OT technicians and nursing staff.

## METHODS

Ours was a prospective observational study conducted in emergency department of UP Rural Institute of Medical Sciences and Research, Saifai, Etawah for the duration of 6 months i.e. January 2015 to June 2015.

All the medical staff including medical officer on duty, residents, nursing staff and OT technicians who are at risk of exposure to contact based disease transmission. Specifications of the residents, OT technicians and nursing staff was not considered separately because this study is to find out that how many times a medical care provider was incompliant or forget to use universal precautions before the handling of patient no matter the status of the patient neither we are considering any prick or contamination.

A pre-set questionnaire was formulated and all the medical staff must mark it on memory basis on daily basis before relieving of their duty. Monthly compilation and tabulation of the data from questionnaire was done on windows MS Excel 2007 which was finally analysed at the end of 6 months.

## RESULTS

In our study we found huge deficit in compliance towards universal precautions recommended for medical care providers. We not only reported cases in which any medical staff got contact to any patient of unknown status but we also reported cases where no contact occur even in patients of known viral marker status. Our study reported all the cases where there was lag in taking precautions which should have been taken. It was reported that Incompliance in the use of eye ware was maximum 1326 times whereas accidental needle handling 109 times and no use of gloves for 192 times in the month of January. It was also seen that there was a gradual fall in these misevents related to incompliance in the use of safety measures as eye ware related misevents was 163, accidental needle handling 33, and no use of gloves was reported 17 times in the month of June.

A remarkable fall in incompliance towards universal precautions was also noted at the end of 6 months of study. A decrease of 96.83% in incompliance towards use of mask, 93.68% fall in inadequate technique of needle disposal and 91.11% fall in lag of use of gloves was documented. An overall fall of 90.09% was noted towards universal precautions related Incompliance among medical care providers.

**Table 1: Incompliance misevents related to use of safety measures.**

| | Jan | Feb | Mar | Apr | May | June | % Fall in incompliance in 6 months |
|---|---|---|---|---|---|---|---|
| Surgical barrier protection | | | | | | | |
| Eye ware | 1326 | 1074 | 937 | 663 | 398 | 163 | 87.70% |
| Mask | 884 | 715 | 543 | 256 | 142 | 28 | 96.83% |
| Gown | 567 | 308 | 384 | 173 | 156 | 96 | 83.06% |
| Gloves | 192 | 138 | 176 | 82 | 35 | 17 | 91.11% |
| Needle handling | | | | | | | |
| Sampling | 462 | 376 | 204 | 167 | 77 | 53 | 88.52% |
| Disposal | 713 | 531 | 438 | 257 | 83 | 45 | 93.68% |
| Accidental | 109 | 65 | 79 | 96 | 41 | 33 | 69.72% |
| Hand wash | 926 | 674 | 527 | 259 | 144 | 78 | 91.57% |
| Total | 5179 | 3881 | 3288 | 1953 | 1076 | 513 | 90.09% |

## DISCUSSION

In our study we found deficit at various levels of precautions which were accidental as well as due to incompliance towards use of universal precautions. We found that even on having complete knowledge about the use and importance of universal precautions while working in emergency there was irresponsible and casual

behaviour towards their use. On compulsory marking up of the questionnaire daily on memory basis there was a fall noticed in incompliance towards the use of safety measure. Not using eye ware as a measure of protection was the most common followed by incompliance in use of mask and Improper disposal of the needle after use.

Evanoff et al observed that the most common major break was failure to wear a mask (32.2% of procedures), followed by inadequate eyewear (22.2%), no gown (5.6%), and no gloves (3.0%).[9] We observed minor breaks during 55.5% of 752 patient encounters. Large and statistically significant variations were seen in use rates of barrier precautions among different groups of personnel; surgery residents were most likely to use precautions, whereas attending surgeons were least likely.

In a cross-sectional study done by Kotwal it was found that there was approximately 0% compliance towards use of eye ware by doctors and nurses while handling of patients which is in accordance to our study.[10] Use of eye ware remains the most incompliant safety measure among medical care providers.

Nelsing S concluded in a study that compliance with specific barriers among "surgeons and pathologists" and "other physicians" was as following.[11] Gloves 63.0% and 23.4%; masks 55.2% and 17.6% and protective eyewear, 11.5% and 4.0% respectively. Common arguments for non-compliance were "interferes with working skills," "forget," "wear spectacles," "not available," "too much trouble to get," or "gloves do not fit."

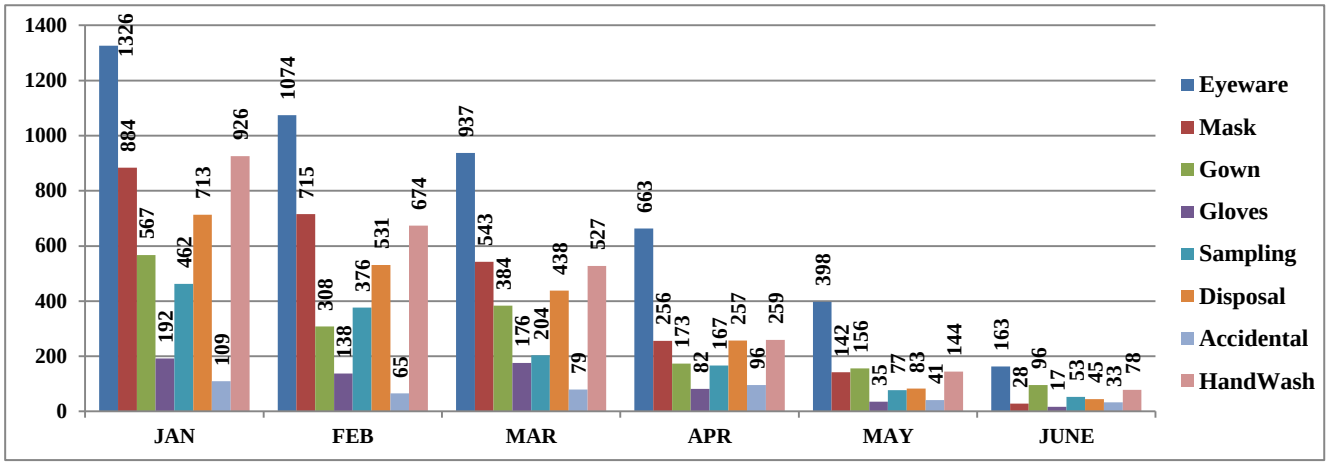


**Figure 1: Fall in misevents related to universal precautions from month of January to June.**

Punia S in a study on compliance of health care workers towards standard precautions concluded that only 21% compliance with use of eye ware, 90% with use of gloves, and 70% with use of hand rub.[12] This supports our findings of huge lag in compliance towards use of eye ware among medical care providers.

Luo Y in a study done in china found similar incompliance among nurses towards standard precaution protocols.[13]

A gradual fall in misevents was noted from the month of January to June which can be attributed to increased compliance from medical care providers due to daily questionnaire filling during the study which increased their alertness towards universal precautions. This advantage in disguise show that a regular reminder about the usefulness and importance of safety measures can largely reduce exposure related misevents in emergency department.

## CONCLUSION

Misevents related to incompliance in using universal precautions measures led to hazardous exposure to patients received in emergency department. Medical care providers being aware of the use of safety measures fall short in using these universal precautions. A simple awareness program in form of daily reminder can lead to decrease in exposure related misevents.

A mandatory daily feedback about the use of standard precautions must be implied in all emergency setups for proper monitoring the incompliance towards use of universal precautions and further training if necessary for staff working in emergency.

*Funding: No funding sources*
*Conflict of interest: None declared*
*Ethical approval: The study was approved by the institutional ethics committee*

## REFERENCES


1. Wong ES, Stotka JL, Chinchilli VM, Williams DS, Stuart CG, Markowitz SM. Are universal precautions effective in reducing the number of occupational exposures among health care workers? A prospective study of physicians on a medical service, Journal of the American Medical Association. 1991;265(9):1123-8.
2. World Health Organization, Health care worker safety, 2014.
3. Roberts C. Universal precautions: improving the knowledge of trained nurses, British Journal of Nursing. 2000;9(1):43-7.
4. Kermode M, Jolley D, Langkham B, Thomas MS, Holmes W, Gifford SM. Compliance with Universal/Standard Precautions among health care workers in rural north India, The American Journal of Infection Control. 2005;33(1):27-33.
5. Wu S, Li L, Wu Z. Universal precautions in the era of HIV/AIDS: perception of health service providers in Yunnan, China, AIDS and Behaviour. 2008;12(5):806-14.
6. Recommendations for prevention of HIV transmission in healthcare settings, http://www.cdc.gov/ mmwr/mmwrsrch.html
7. Guidelines for prevention of transmission of human immunodeficiency virus and hepatitis B virus to health-care and public-safety workers: a response to P.L. 100-607. The Health Omnibus Programs Extension Act of 1988, Morbidity and Mortality Weekly Report. 1989;38(6):3-37.
8. Guide to Infection Prevention for Outpatient Settings: Minimum Expectations for Safe Care. http://www.cdc.gov/HAI/pdfs/guidelines/standatds-of-ambulatory-care-7-2011.pdf
9. Evanoff B. Compliance with universal precautions among emergency department personnel caring for trauma patients. Ann Emerg Med. 1999;33(2):160-5.
10. Kotwal A, Taneja D. Health Care Workers and Universal Precautions: Perceptions and Determinants of Non-compliance. Indian Journal of Community Medicine : Official Publication of Indian Association of Preventive & Social Medicine. 2010;35(4):526-8.
11. Nelsing S, Nielsin TL, Nielsin JO. Noncompliance with universal precautions and the associated risk of mucocutaneous blood exposure among Danish physicians. Infect Control Hosp Epidemiol. 1997;18(10):692-8.
12. Punia S, Nair S, Shetty R. Health Care Workers and Standard Precautions: Perceptions and Determinants of Compliance in the Emergency and Trauma Triage of a Tertiary Care Hospital in South India. International Scholarly Research Notices Volume. 2014;685072:5.
13. Luo Y. Factors impacting compliance with standard precautions in nursing, China. International Journal of Infectious diseases. 2010;14(12):e1106-14.


**Cite this article as:** Singh SP, Kumar A, Gupta P, Gupta M, Singh P, Shrivastava S. Incompliance in use of universal precautions as a safety measure in emergency department. Int Surg J 2016;3:858-61.